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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
09/822,823	04/02/2001	Terry Thomas	7771-62	8090

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EXAMINER	
SAUNDERS, DAVID A	
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1644	9

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Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary	Application No. 822,823	Applicant(s) THOMAS et al
	Examiner SAUNDERS	Group Art Unit 1644

—The MAILING DATE of this communication appears on the cover sheet beneath the correspondence address—

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, such period shall, by default, expire SIX (6) MONTHS from the mailing date of this communication .
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).

Status

☑ Responsive to communication(s) filed on 10/11/02.

☐ This action is **FINAL.**

☐ Since this application is in condition for allowance except for formal matters, **prosecution as to the merits is closed** in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 1 1; 453 O.G. 213.

Disposition of Claims

☑ Claim(s) 1-20 is/are pending in the application.

Of the above claim(s) 1-12 is/are withdrawn from consideration.

☐ Claim(s) _____ is/are allowed.

☑ Claim(s) 13-20 is/are rejected.

☐ Claim(s) _____ is/are objected to.

☐ Claim(s) _____ are subject to restriction or election requirement.

Application Papers

☐ See the attached Notice of Draftsperson's Patent Drawing Review, PTO-948.

☐ The proposed drawing correction, filed on _____ is ☐ approved ☐ disapproved.

☐ The drawing(s) filed on _____ is/are objected to by the Examiner.

☐ The specification is objected to by the Examiner.

☐ The oath or declaration is objected to by the Examiner.

Priority under 35 U.S.C. § 119 (a)-(d)

☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 11 9(a)-(d).

☐ All ☐ Some* ☐ None of the CERTIFIED copies of the priority documents have been

☐ received.

☐ received in Application No. (Series Code/Serial Number) _____.

☐ received in this national stage application from the International Bureau (PCT Rule 1 7.2(a)).

*Certified copies not received: _____.

Attachment(s)

☑ Information Disclosure Statement(s), PTO-1449, Paper No(s). 4-7

☐ Interview Summary, PTO-413

☐ Notice of Reference(s) Cited, PTO-892

☐ Notice of Informal Patent Application, PTO-152

☑ Notice of Draftsperson's Patent Drawing Review, PTO-948

☐ Other _____

Office Action Summary

The claims pending are 1-20.

Applicant's election without traverse of Group II (claims 13-20) in Paper No. 6, filed on 10/11/02, is acknowledged.

The oath or declaration is defective. A new oath or declaration in compliance with 37 CFR 1.67(a) identifying this application by application number and filing date is required. See MPEP §§ 602.01 and 602.02.

The oath or declaration is defective because:

The declaration fails to claim benefit of the related non-provisional and provisional applications recited on specification page 1.

ok 5x amend The disclosure is objected to because of the following informalities: at page 1, line 5 the status 09/579,463 must be updated.

Appropriate correction is required.

Improperly written exponenets appear at page 11, line 10; page 18, line 5 and page 20, line 32.

Page 16 , lines 5, 7 and 2 and also page 18, line 10 recite "ug/ml". Should this be -- mg/ml --?

Tables 1 and 2 contain numerous recitations of Roman letter a, b, g and d instead of Greek letters alpha, beta, gamma and delta.

Applicant is referred to the parent disclosure for correct recitations.

Claim 20 is objected to under 37 CFR 1.75(c), as being of improper dependent form for failing to further limit the subject matter of a previous claim. Applicant is required to cancel the claim(s), or amend the claim(s) to place the claim(s) in proper

dependent form, or rewrite the claim(s) in independent form. Claim 20 merely sets forth and intended use of the composition of base claim 17 and sets forth no structural features (e.g. additional antibodies), which further define the composition from that of claim 17.

Applicant is advised that should claims 14-16 be found allowable, claims 17-19 will be objected to under 37 CFR 1.75 as being a substantial duplicate thereof. When two claims in an application are duplicates or else are so close in content that they both cover the same thing, despite a slight difference in wording, it is proper after allowing one claim to object to the other as being a substantial duplicate of the allowed claim. See MPEP § 706.03(k).

Claims 14-16 and 17-19 are recited in a parallel manner, except for the fact that claims 17-19 have the added limitation that the cells are tumor cells. This, however, merely sets forth an intended use and sets forth no structural features which differentiate these compositions from those of claims 14-16.

Claims 13-20 are rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.

The composition of claim 13 is unclear in the case in which component (a) binds to at least two antigens on undesired cells – e.g. to two antigens such as CD45 and CD 66b, as recited in dependent claims 14 and 17. It is not clear in such a case whether the anti – CD45 and anti – CD66b antibodies would be required to exist in one construct/molecular complex with component (b), which is the anti- erythrocyte (e.g.

anti-glycophorin antibody), or whether the anti-CD45 and anti – CD66b antibodies could be in separate constructs/ molecular complexes (e.g. as in a cocktail of complexes). Since applicant exemplifies a cocktail (e.g. page 14, lines 7-17) it is considered that the claims encompass either of the above noted embodiments, for the purpose of examination over the prior art.

The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

> A person shall be entitled to a patent unless –
>
> (a) the invention was known or used by others in this country, or patented or described in a printed publication in this or a foreign country, before the invention thereof by the applicant for a patent.
>
> (b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.
>
> (e) the invention was described in a patent granted on an application for patent by another filed in the United States before the invention thereof by the applicant for patent, or on an international application by another who has fulfilled the requirements of paragraphs (1), (2), and (4) of section 371(c) of this title before the invention thereof by the applicant for patent.

Prior to examination of the claims over the prior art the effective filing date of each claim must be established.

Claim 13 is granted benefit of the filing date of parent application 09/579,463, as well as of the filing date of the earliest provisional application 60/136, 770 (see pages 5 and 8 therein).

Claims 17, 19 and 20 are given benefit of the filing date of parent application '463. See original claims 26-28 and 57-59 therein. These are not recited in provisional application 60/203, 477; hence the filing date of '463 is the earliest effective date for these claims.

Claims 14 and 16 are only given benefit of the instant CIP filing date of 4/2/01. While these parallel original claims 26-27 and 57-58 of the '463 application, they are broader by virtue of not limiting the cells to "tumor" cells.

Claims 15 and 18 are only granted benefit of the instant CIP filing date. These claims relate to page 14, lines 10-17; page 21, lines 5-12 and Table 3. None of this disclosure appears in parent '463.

Claim 13 is rejected under 35 U.S.C. 102(b) as being anticipated by Hillyard et al (5,086,002).

Hillyard et al disclose bifunctional antibodies, which can be chemically coupled with a cross linking agent, with a disulfide bond, or via biotin avidin linkage – see various examples. One of thus linked antibodies is directed to erythrocyte and the other to an analyte. The analyte can be a microorganism, such as a bacterium, protozoan or fungus (col. 9, lines 60-62). Each of these may be properly considered an undesirable cell. Thus all features of claim 13 are anticipated.

It is noted that , even though the bispecific antibody composition of Hillyard et al is used for an assay rather than for removing "undesired cells", applicant is claiming a composition. The composition is taught in the prior art, and any different intended use by applicant cannot overcome the prior art.

Claim 13 is rejected under 35 U.S.C. 102(b) as being anticipated by Taylor et al (5,470,570).

Taylor et al disclose bifunctional antibodies (e.g. antibodies of two different specificities, coupled by a chemical cross linker), as disclosed at col. 3, lines 1-35. One

antibody is directed to an erythrocyte (RBC) antigen and the other to an undesirable antigen, such as a "microorganism" (col. 7, line 13). Since a microorganism constitutes an "undesired cell" all limitations of the claim are taught.

Claim 13 is rejected under 35 U.S.C. 102(b) as being anticipated by Labruguen et al (Immunol. Left. 32, 175, 1995).

Labruguen et al disclose essentially the same bispecific antibodies as Taylor et al. They disclose that such can be directed to remove pathogenic bacteria (page 176, col. 1, first para.), which are "undesirable cells" .

Claim 13 is rejected under 35 U.S.C. 102(b) as being anticipated by Slaper – Cortenback et al (Bone Marrow Purging and Processing, 337, 1990).

Slaper – Cortenback et al disclose tetrameric complexes containing an antierythrocyte antibody and an antitumor cell antibody (para spanning pages 337-338). Tumor cells are "undesired cells"; hence claim 13 is anticipated.

Claim 13 is rejected under 35 U.S.C. 102(b) as being anticipated by Slaper – Cortenback et al (Exp. Hematol. 18, 49, 1990).

This reference discloses the same tetrameric complexes as noted supra in for Slaper-Cortenback et al (Bone Marrow...).

Claim 13 is rejected under 35 U.S.C. 102(b) as being anticipated by Slapper-Cortenback et al (Advances in Bone Marrow Purging and Processing, 147, 1992).

As with the two above noted other references of Slapper – Cortenback et al, this discloses a tetrameric complex of an antierythrocyte antibody and an antitumor cell antibody. See para. Spanning pages 149-150.

Claim 13 is rejected under 35 U.S.C. 102(b) as being anticipated by Vervoordeldonk et al Journal of Hematotherapy 6,495,1997.

Vervoordeldonk et al disclose a tetrameric complex like those disclosed by the above noted Slapper-Cortenback et al references. See page 496, col. 2, second full para.

Claims 13 is rejected under 35 U.S.C. 102(b) as being anticipated by Schreiner et al (Transfus. Sci. 17, 637,1996.

Schreiner et al teach a tetrameric complex like those of Slapper-Cortenback et al. See page 638, col. 1, first full para.

It is to be noted that each of the above cited Taylor et al Labuguen et al, Slaper – Cortenback et al, Vervoordeldonk et al, and Schreiner et al references teach that the exemplified multifunctional/tetrameric complexe is to be combined with erythrocytes prior to cell separation. However the composition claimed by applicant is taught as an intermediate composition, which properly anticipates. Though applicant may disclose its use in a manner different from that of the prior art, intended use of an old composition cannot overcome.

Claim 13 is rejected under 35 U.S.C. 102((a) or (b)) as being anticipated by Stem Cell Technologies Website.

The reference shows the instantly claimed composition -- see especially the tetrameric constructs in the Figure. The examiner has no idea as to whether or not this advertisement predates the instant invention. Clarification on the record is required.

An issue of public use or on sale activity has been raised in this application. In order for the examiner to properly consider patentability of the claimed invention under

35 U.S.C. 102(b), additional information regarding this issue is required as follows: It is not clear as to when the Rosettesep compositions were first offered for sale, whether on a website or in printed advertisements.

Applicant is reminded that failure to fully reply to this requirement for information will result in a holding of abandonment.

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

> (a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.

Claims 14-20 are rejected under 35 U.S.C. 103(a) as being unpatentable over Peters et al (FASEB Journal 2000) in view of Thomas et al (6,117,985).

Peters et al teach the basic aspects of the instant immunorosetting method and they teach bispecific antibody reagents for this method. This reference pre-dates the filing date of parent 09/579,463, which is the earliest date granted to away of claims 14-20. Peters et al do not show unwanted or undesired cells having the CD antigens recited in claims 14-20.

Thomas et al disclose (col. 6, lines 48-59) that it would be desirable to remove cells containing CD45 and CD66b, among other antigens and optionally to remove cells containing CD36. Thus all CD antigens recited in claims 14-19 are shown to be on undesired cells, when one uses a negative selection method to enrich non-hematopoietic tumor cells.

Regarding claim 20, note Thomas et al col. 14, lines 57-62 teaching epithelial tumor cells.

It would have been obvious to use the immunorosetting reagents and method taught by Peters et al to enrich non-hematopoietic tumor cells via negative selection using antibodies to the CD antigen markers taught by Thomas et al, in conjunction with an antibody to the glycophorin – A (erythrocyte antigen) taught by Thomas et al. By using a cocktail of bispecific for glycophorin-A and each of the CD antigens taught by Thomas et al, one would have expected to effectively remove cells with all of the antigens listed by Thomas et al (col. 6, lines 50-51, by the formation of immunorosettes like those formed in the method of Peters et al. Motivation to do so comes from the fact that Peters et al teach that one can obtain cells with a purity equal to that obtained by more complicated immunomagnetic techniques (note that the method of Thomas et al would require complicated separation steps when using magnetic colloids, as shown in Fig. 1).

Any inquiry concerning this communication or earlier communications from the examiner should be directed to David Saunders whose telephone number is (703) 308-3976. The examiner can normally be reached on Monday to Thursday from 8 AM to 5:30 PM.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Christina Chan can be reached on (703) 308-3973. The fax phone numbers for the organization where this application or proceeding is assigned are (703) 308-4242 for regular communications and (703) 308-4242 for After Final communications.

Any inquiry of a general nature or relating to the status of this application or proceeding should be directed to the receptionist whose telephone number is (703) 308-0196.

David A Saunders

DAVID SAUNDERS
PRIMARY EXAMINER
ART UNIT ~~182~~ 1644

Saunders/LR
January 28, 2003